

REMARKS

Favorable reconsideration of this Application as presently amended and in light of the following discussion is respectfully requested.

After entry of the foregoing Amendment, Claims 1-35 are pending in the present Application. Claims 1 and 32 have been amended to address a cosmetic matter of form. No new matter has been added.

By way of summary, the Official Action presents the following issue: Claims 1-35 are rejected under 35 U.S.C. § 103 as being unpatentable over Bar et al. (U.S. Patent Application Publication No. 2004/0235495, hereinafter "Bar") in view of Kammerlander et al. (U.S. Patent No. 4,667,202, hereinafter "Kammerlander").

REJECTION UNDER 35 U.S.C. § 103

The outstanding Official Action has rejected Claims 1-35 under 35 U.S.C. § 103 as being unpatentable over Bar in view of Kammerlander. The Official Action contends that Bar describes all of the Applicants' claimed features with the exception of a receiving radio set receiving packets and then sending the packets back after a certain length of time corresponding to an integral multiple of a prescribed unit time, and the sending radio set calculating the time required for packets to be transmitted to, and, return from the receiving radio set by subtracting the integral multiple of a prescribed unit time from the time taken from the transmission of packets to reception of packets. However, the Official Action cites Kammerlander as describing this more detailed aspect of the Applicants' claimed advancement, and states that it would have been obvious to one of ordinary skill in the art at the time the advancement was made to combine the cited references for arriving at the Applicants' claims. Applicants respectfully traverse the rejection.

Applicants' Claim 1 recites, *inter alia*, a ranging and positioning system, including:

... a sending radio set configured to transmit packets;
a receiving radio set configured to receive the packets and then send the packets back to the sending radio set after a certain length of time corresponding to an integral multiple of a prescribed unit time,
wherein the sending radio set calculates the time required for the packets to be transmitted to, and, return and from the receiving radio set by subtracting the integral multiple of a prescribed unit time from the time taken from transmission of packets to reception of packets, thereby determining the distance between the sending and receiving radio sets according to the time required for the packets to be transmitted and return.

Bar describes a system and associated method for determining the position of a user appliance in a radio communication system. The system is configured of a plurality of radio cells (CE1), each of which is supported by a corresponding base station (NB1).¹ Within cell (CE1), a mobile radio device (UE1) may establish a radio link with a base station in the usual manner. In order to be able to determine the position, or location, of the mobile radio device (UE1), present in the radio cell (CE1) at a given time, position elements (PE11-PE14) are arranged and distributed in the radio cell (CE1).² The positional elements are placed in external boundaries of the radio cell (CE1).

In operation, the Bar system determines the position of mobile radio devices (UE1) by transmitting one or more locating measuring signals from the base station (NB1). The transmitted measuring signals determine a distance circle (RTK1) around the base station (NB1). In order to further delimit the location of the mobile radio device (UE1), one or more locating measuring signals are transmitted simultaneously, or each offset chronologically by a known time period, by at least two further position elements, such as, for example, (PE1) and

¹ Bar at Fig. 2; paragraph 19.

² Bar at paragraph 19.

(PE3). In this way, at least two further distance circles (CI1) and (CI3) are determined using corresponding transit time measurements of these locating measuring signals.³

As noted in the Official Action Bar fails to disclose or suggest calculating the time required for packets to be transmitted to, and return from a receiving radio set by subtracting the integral multiple of a prescribed unit time from the time taken from transmission of packets to reception of packets in order to determine the distance between sending and receiving a radio set. However, the Official Action has cited Kammerlander as describing this more detailed aspect of the Applicants' claimed advancement.⁴

Kammerlander describes a mobile radio network including a range measurement methodology wherein a delay time is measured with reference to a radio link hop. As shown in Figure 8, a radio location receiver is provided to perform a relative range measurement. In the figure, base stations (F1) and (F2) are shown separated by a distance E.⁵ A radio location receiver is designated (FME) which is located at the base station (F2) to measure a transit time (b) of a radio subscriber device (FTG). The radio subscriber device (FTG) is in communication with the base station (F1).⁶ A transit time (a) designates the time by which a transmission from base station (F1) reaches the subscriber device (FTG). Likewise, a transmission from the subscriber device (FTG) to base station (F2) is designated by the transit time (b). Thus, the sum Δt corresponds to $a+b$. The subscriber device (FTG) provides a transmission to base station (F1) which is designated (a'); this transit time corresponds to transit time a. In this way, base station (F1) can identify the absolute range of the radio subscriber device (FTG) which is then provided to the subscriber device (FTG) for relay to

³ Bar at paragraph 20.

⁴ See Official Action, paragraph bridging pages 2 and 3.

⁵ Kammerlander Figure 8; column 6, lines 34-38.

⁶ Kammerlander column 6, lines 43-58.

the second base station (F2). In this way, the second base station (F2) determines the transit time (b).⁷

Conversely, in an exemplary embodiment of the Applicants' invention, a ranging and positioning system is provided in which a distance between two radio sets is measured. A sending radio set is configured to transmit packets and a receiving radio set is configured to receive the packets and send the packets back to the sending radio set after a certain length of time. The length of time corresponds to an integral multiple of a prescribed unit time. In this manner, the sending radio set calculates a time required for packets to be transmitted and returned back from the receiving radio set by subtracting the integral multiple of the prescribed unit time from the time taken from transmitting to reception of the packets. The distance between the sending and receiving radio sets is determined according to the time required for packets to be transmitted and returned from their point of origination.⁸

As Kammerlander does not disclose or suggest calculating the time required for packet transmission to reception by subtracting an integral multiple over prescribed unit time, Applicants respectfully submit that amended Claim 1, and any claim depending therefrom, is allowable over the cited reference. Likewise, as independent Claims 11 and 20 recite substantially similar limitations to that discussed above, Applicants submit that these claims, and any claims depending therefrom, are also allowable over the cited reference.

Accordingly, Applicants respectfully request that the rejection of Claims 1-35 under 35 U.S.C. § 103 be withdrawn.

CONCLUSION

Should the Examiner continue to disagree with the above distinctions, Applicants respectfully request that the Examiner provide an explanation via Advisory Action

⁷ Kammerlander column 6, lines 63 to column 7, line 9.

⁸ Application at Figs. 4-5.

pursuant to MPEP § 714.13 specifically rebutting the points raised herein for purposes of facilitating the appeal process.

Consequently, in view of the foregoing amendment and remarks, it is respectfully submitted that the present Application, including Claims 1-35, is patently distinguished over the prior art, in condition for allowance, and such action is respectfully requested at an early date.


Respectfully submitted,

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